

**Notice of Allowability**

Application No.

10/708,450

Examiner

Kara E. Geisel

Applicant(s)

DOUGHTY, FRANK C.

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 04 March 2004.
2. ☒ The allowed claim(s) is/are 1-39.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 031104, 032904
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 20060618.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

Gregory J. Tolley, Jr.  
Supervisory Patent Examiner

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## DETAILED ACTION

### *Preliminary Amendment*

The preliminary amendment filed on April 14<sup>th</sup>, 2004, has been entered into this application.

### *Information Disclosure Statement*

The information disclosure statements filed on March 11<sup>th</sup>, 2004 and March 29<sup>th</sup>, 2004 have been considered by the examiner.

### *Drawings*

The drawings filed on March 4<sup>th</sup>, 2004, have been accepted by the Examiner.

### *Examiner's Amendment*

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Kurt Rauschenbach on June 19, 2006.

The application has been amended as follows:

In regards to claims 3, line 1, and claim 12, lines 2-3, "chosen from the group comprising" has been changed to --chosen from the group **consisting of**-- in order to make the claims be correct Markush groups.

In regards to claim 25, line 2, "magnet field" has been changed to --magnetic field-- in order to correct for an obvious typographical error (see lines 2-3).

The amended claims appear below:

3. The spectrometer of claim 2 wherein the planar substrate is chosen from the group ~~comprising~~ consisting of glass, sapphire, quartz, aluminum nitride, alumina, fused silica, fiberglass, fiber reinforced epoxy, FR-4, Teflon (PTFE), delrin, polyimide, ceramics, and ceramic/polymer composites.

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12. The spectrometer of claim 1 wherein the resonant antenna structure is formed of a material selected from the group ~~comprising~~ consisting of gold, copper, platinum, aluminum, nickel, electro-less nickel, silver, tin, and solder material.

25. The method of claim 20 further comprising generating a magnetic field through the microplasma, the magnetic field confining electrons in the microplasma.

*Examiner's Reasons for Allowance*

Claims 1-39 are allowed over the prior art of record.

The following is an examiner's statement of reasons for allowance:

As to claim 1, the prior art of record, taken alone or in combination, fails to disclose or render obvious a microplasma emission spectrometer comprising a spectrally sensitive detector having an entrance that is optically couple to the microplasma, the entrance having dimensions and being positioned so that emissions from at least one-tenth of a total volume of the microplasma are transmitted through the entrance of the spectrally sensitive detector, in combination with the rest of the limitations of claim 1.

As to claim 20, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of analyzing a gaseous environment comprising imaging emissions generated within at least one-tenth of a total volume of the microplasma onto an entrance of a spectrally sensitive detector, in combination with the rest of the limitations of claim 20.

As to claim 27, the prior art of record, taken alone or in combination, fails to disclose or render obvious a microplasma spectrometer comprising a microplasma source that generates a microplasma from a sample volume of gas, the microplasma having a plasma sheath volume-to-total volume ratio that is approximately between about 0.1 and 0.9; and an optical element that is positioned to image emissions from the microplasma, the optical element being positioned a distance from a center of the microplasma that is less than ten times a transverse dimension of the microplasma, in combination with the rest of the limitations of claim 27.

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As to claim 39, the prior art of record, taken alone or in combination, fails to disclose or render obvious a microplasma spectrometer comprising a means for generating the microplasma from a volume of gas, the microplasma having a plasma sheath volume-to-total plasma volume ratio that is greater than about 0.1, in combination with the rest of the limitations of claim 39.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Additional Prior Art*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art made of record is Rohr et al. (USPN 6,069,695).

Rohr discloses a plasma emission spectrometer that can measure emissions from the entire volume of the plasma.

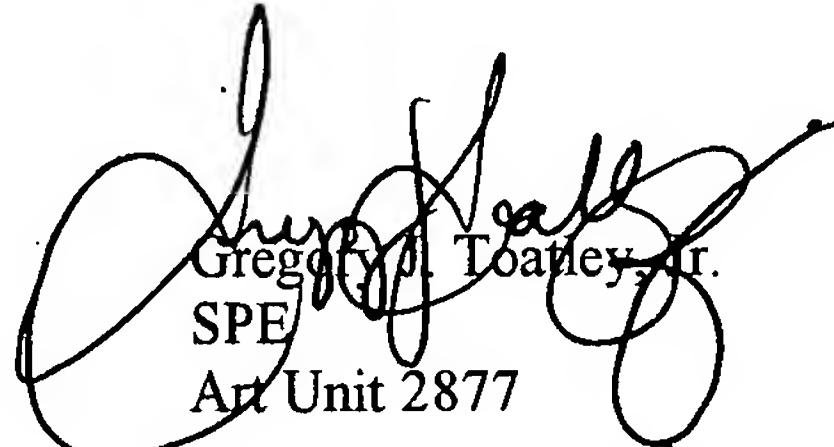
#### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kara E Geisel whose telephone number is 571 272 2416. The examiner can normally be reached on Monday through Friday, 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571 272 2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571 273 8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Gregory J. Toaney, Jr.  
SPE  
Art Unit 2877  
19 JUNE 06

K.G.  
KEG  
June 19, 2006